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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,460	11/24/2003	Shigeo Ohno	2352.002	6486

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EXAMINER	
STEADMAN, DAVID J	
ART UNIT	PAPER NUMBER
1656	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/720,460	OHNO, SHIGEO	
	Examiner	Art Unit	
	David J. Steadman	1656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-14 and 16-20* is/are pending in the application.

4a) Of the above claim(s) *4-14,18 and 19* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,16,17 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of the Application

[1] Claims 1, 3-14, and 16-20 are pending in the application.

[2] Applicant's amendment to the claims, filed on 3/20/07, is acknowledged. This listing of the claims replaces all prior versions and listings of the claims. Applicant is reminded of the amendment practice according to 37 CFR 1.121, which requires markings to show changes made relative to the prior version of a claim. See particularly claim 17, which adds the term "isolated," in line 2 without showing underlining.

[3] Applicant's amendment to the specification, filed on 3/20/07, is acknowledged.

[4] Receipt of an English language translation of Japanese Patent Application No. 2001-156088, filed on 3/20/07, is acknowledged.

[5] Receipt of a Declaration under 37 CFR 1.132, filed on 3/20/07, is acknowledged.

[6] Applicant's arguments filed on 3/20/07 in response to the Office action mailed on 10/20/06 are acknowledged. Applicant's arguments have been fully considered and are deemed to be persuasive to overcome some of the rejections and/or objections previously applied. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn.

[7] The text of those sections of Title 35 U.S. Code not included in the instant action can be found in a prior Office action.

Election/Restriction

[8] Claims 4-14 and 18-19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim.

[9] Claims 1, 3, 16-17, and 20 are being examined on the merits. Claim 16 has been examined only to the extent the claim reads on the elected subject matter, *i.e.,* the limitation of "an inhibitor of a phosphatidyl inositol kinase related kinase" is considered to be non-elected subject matter.

Claim to Domestic and Foreign Priority

[10] Applicants' claim to domestic priority under 35 U.S.C. § 120 to PCT/JP01/10234, filed 22 November 2001, is acknowledged. Applicant's claim to foreign priority under 35 U.S.C. § 119(a)-(d) to Japanese application JP 2001-156088, having the priority date of 24 May 2001, is acknowledged. A certified copy of the foreign priority document has been filed in the instant application. An English-language translation of Japanese application JP 2001-156088 has been filed as noted above.

Claim Objection

[11] Claim 1 is objected to in the recitation of "comprising an amino acid sequence in which 1 to 5 amino acids are deleted, substituted, and/or inserted in the amino acid sequence consisting of amino acids 129 to 3657 of the amino acid sequence of SEQ ID NO:2." In order to improve form of the claim, it is suggested that applicant re-phrase the wording of part (2) of claim 1 to read: "an isolated polypeptide having SMG-1 activity

and comprising amino acids 129 to 3657 of SEQ ID NO:2, except 1-5 amino acids are deleted, substituted, and/or inserted" in accordance with applicant's intended interpretation of the claim (instant response at p. 9, bottom).

Claim Rejections - 35 USC § 101

[12] The rejection of claim 16 under 35 U.S.C. 101 as being directed to non-statutory subject matter is maintained for the reasons of record and the reasons stated below. The rejection was fully explained in a prior Office action.

RESPONSE TO ARGUMENT: Applicant argues the rejection is obviated by amendment to insert "isolated" to clarify the claimed polypeptide is not a "naturally-occurring" polypeptide.

Applicant's argument is not found persuasive. No such amendment has been incorporated into claim 16. To the extent claim 16 encompasses "naturally-occurring" polypeptides that have the activity of "suppressing nonsense-mediated mRNA decay," contrary to applicant's position, the claim encompasses a product of nature and should be amended to indicate the hand of the inventor. While one may argue the recitation of "mutant" in claim 16 is indicative of the hand of the inventor. However, the term "mutant SMG-1 polypeptide that lacks SMG-1 activity" has been broadly and reasonably interpreted in accordance with MPEP 2111 as encompassing any variant of an SMG-1 polypeptide, including naturally-occurring polypeptides, that have activity other than SMG-1 activity.

Claim Rejections - 35 USC § 112, First Paragraph

[13] The written description and scope of enablement rejections of claims 1 and 17 under 35 U.S.C. 112, first paragraph, are withdrawn in view of the amendment to the claims, in view of the interpretation applied to claim 1 as noted above, and the specification's definition of "SMG-1 activity" as being "an activity of phosphorylating Upf1/SMG-2 [Sun, X. et al., Proc. Natl. Acad. Sci. USA, 95, 10009-10014 (1998); and Bhattacharya, A. et al., RNA, 6, 1226-1235 (2000)]" (specification at p. 6, middle). Regarding the specification's definition of "SMG-1 activity," MPEP 2111.01.IV states, "[w]here an explicit definition is provided by the applicant for a term, that definition will control interpretation of the term as it is used in the claim. *Toro Co. v. White Consolidated Industries Inc.*, 199 F.3d 1295, 1301, 53 USPQ2d 1065, 1069 (Fed. Cir. 1999)."

[14] The written description rejection of claims 16 and 20 under 35 U.S.C. 112, first paragraph, is maintained for the reasons of record and the reasons stated below. The rejection was fully explained in a prior Office action.

RESPONSE TO ARGUMENT: Applicant argues the rejection of claim 1 is obviated in view of the amendment to claim 1 to recite specific structural features of the genus of claimed polypeptides.

Applicant's argument is not found persuasive. No such amendment has been incorporated into claim 16. In this case, the structure of the mutant of claim 16 is

completely undefined. As noted in the prior Office action, the specification discloses only a single species of the genus of recited polypeptides of claim 16, *i.e.,* SEQ ID NO:2 with a single mutation, wherein the mutation is Asp at position 2331 replaced with Ala [specification at p. 34, 3rd full paragraph]. Other than this single representative species, the specification fails to disclose any other additional representative species of the genus of recited polypeptides. While MPEP § 2163 acknowledges that in certain situations "one species adequately supports a genus," it is also acknowledges that "[f]or inventions in an unpredictable art, adequate written description of a genus which embraces widely variant species cannot be achieved by disclosing only one species within the genus."

Given the lack of description of a representative number of polynucleotides, the specification fails to sufficiently describe the claimed invention in such full, clear, concise, and exact terms that a skilled artisan would recognize that applicant was in possession of the claimed invention.

Moreover, it is noted the "mutant SMG-1" polypeptide is defined solely in terms of a functional feature, namely that of lacking SMG-1 activity. However, this recitation fails to provide a sufficient description of the recited genus of "mutant SMG-1" proteins as it merely describes the functional features of the genus without providing any definition of the structural features of the species within the genus. The CAFC in *Regents of the University of California v. Eli Lilly*, (43 USPQ2d 1398) stated that: "In claims to genetic material, however a generic statement such as 'vertebrate insulin cDNA' or 'mammalian insulin cDNA,' without more, is not an adequate written description of the genus

because it does not distinguish the claimed genus from others, except by function. It does not specifically define any of the genes that fall within its definition. It does not define any structural features commonly possessed by members of the genus that distinguish them from others. One skilled in the art therefore cannot, as one can do with a fully described genus, visualize or recognize the identity of the members of the genus." Similarly with the recited genus of "mutant SMG-1" proteins the functional definition of the genus does not provide any structural information commonly possessed by members of the genus which distinguish the protein species within the genus from other proteins such that one can visualize or recognize the identity of the members of the genus.

At least for the reasons of record and the reasons stated above, the specification fails to adequately describe the claimed invention.

[15] The scope of enablement rejection of claims 16 and 20 under 35 U.S.C. 112, first paragraph, is maintained for the reasons of record and the reasons stated below. The rejection was fully explained in a prior Office action.

RESPONSE TO ARGUMENT: Applicant argues the rejection of claim 1 is obviated in view of the amendment to claim 1 to recite specific structural features of the genus of claimed polypeptides.

Applicant's argument is not found persuasive. No such amendment has been incorporated into claim 16 and the claim broadly encompasses any polypeptide other than a non-mutant SMG-1 protein that lacks SMG-1 activity. The specification discloses

only a single working example of recited polypeptides of claim 16, *i.e.,* SEQ ID NO:2 with a single mutation, wherein the mutation is Asp at position 2331 replaced with Ala [specification at p. 34, 3rd full paragraph]. As noted in the prior Office action, there is a high level of unpredictability associated with altering a polypeptide's structure with an expectation of abolishing an intrinsic activity, *i.e.,* the ability to phosphorylate Upf1/SMG-2, while maintaining a desired activity, *i.e.,* suppressing nonsense-mediated mRNA decay, which is undisputed by applicant. Other than the single working example as noted above, the specification fails to disclose any specific guidance for altering the amino acid sequence of SEQ ID NO:2 with an expectation that the resulting variants of SEQ ID NO:2 as encompassed by the claims will achieve or maintain the desired activity/utility. While methods of isolating or generating variants of a polypeptide were known in the art at the time of the invention, it was not routine in the art to screen – by a trial and error process – for all polypeptide variants having a substantial number of modifications as encompassed by the claims for those polypeptides having the desired activity/utility.

In view of the overly broad scope of the claims, the lack of guidance and working examples provided in the specification, the high level of unpredictability, and the quantity of experimentation, the examiner maintains the position that the specification, while being enabling for SEQ ID NO:2 with a single mutation, wherein the mutation is Asp at position 2331 replaced with Ala and that undue experimentation would be necessary for a skilled artisan to make and use the entire scope of the claimed invention. Applicants have not provided sufficient guidance to enable one of ordinary

skill in the art to make and use the claimed invention in a manner reasonably correlated with the scope of the claims. The scope of the claims must bear a reasonable correlation with the scope of enablement (*In re Fisher*, 166 USPQ 19 24 (CCPA 1970)). Without sufficient guidance, determination of having the desired biological characteristics is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See *In re Wands* 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988).

Claim Rejections - 35 USC § 102

[16] The rejection of claim 16 under 35 U.S.C. 102(a) as being anticipated by Denning et al. [*J Biol Chem* (2001) 276:22709-22714; cited as reference CG in the IDS filed 9 August 2004] is maintained for the reasons of record and the reasons stated below. The rejection was fully explained in a prior Office action.

RESPONSE TO ARGUMENT: Applicant argues the rejection is obviated by amendment as the polypeptide of Denning et al. does not satisfy the structural limitations as recited in the claims.

Applicant's argument is not found persuasive. The examiner maintains the position that the reference of Denning et al. anticipates the claimed invention. Claim 16 does not require any structural limitation on the mutant SMG-1 polypeptide. As noted in the prior Office action, the reference of Denning et al. discloses a kinase-deficient mutant of human SMG-1 (see, *e.g.,* p. 22710, right column, middle and p. 22712, left column, bottom). While it is acknowledged that Denning et al. do not disclose the

mutant as being used for "suppressing nonsense-mediated mRNA decay," because the polypeptide Denning et al. lacks SMG-1 activity (as defined in the specification), the polypeptide of Denning et al. would necessarily be suitable for the intended use as recited in the claim.

[17] The rejection of claims 1, 3, and 16-17 under 35 U.S.C. 102(a) as being anticipated by Ohnishi et al. ("23rd Annual Meeting of the Molecular Biology Society of Japan," Program and Abstracts, December 14, 2000; cited as reference CB in the IDS filed 9 August 2004) is withdrawn in view of the Declaration under 37 CFR 1.32 by inventor Ohno applicant's arguments addressing the instant rejection. See MPEP 2132.01.

[18] The rejection of claims 1, 3, and 16-17 under 35 U.S.C. 102(a) as being anticipated by Yamashita et al. (*Genes Develop* 15:2215-2228, 2001; cited as reference CH in the IDS filed 9 August 2004) is withdrawn in view of the English language translation of Japanese foreign priority application 2001-156088 and applicant's arguments addressing the instant rejection.

[19] The rejection of claims 1, 3, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohnishi et al. ("22nd Annual Meeting of the Molecular Biology Society of Japan," Program and Abstracts, December 7-10, 1999; cited as reference CC in the IDS

filed 3 August 2006) is maintained for the reasons of record and the reasons stated below. The rejection was fully explained in a prior Office action.

Applicant fails to traverse the instant rejection. The court generally accepts as fact that which is not disputed by applicant. See *In re Kunzmann*, 140 USPQ 235 (CCPA 1964). Accordingly, the examiner maintains the position that the reference of Ohnishi et al. anticipates the claimed invention and the rejection is maintained for the reasons of record.

Conclusion

[20] Status of the claims:

Claims 1, 3-14, and 16-20 are pending.

Claims 4-14 and 18-19 are withdrawn from consideration.

Claims 1, 3, 16-17, and 20 are rejected.

No claim is in condition for allowance.

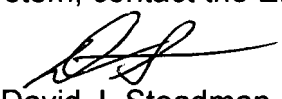
THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David J. Steadman whose telephone number is 571-272-0942. The examiner can normally be reached on Monday to Friday, 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathleen Kerr Bragdon can be reached at 571-272-0931. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David J. Steadman, Ph.D.
Primary Examiner
Art Unit 1656